TRAFFIC ENGINEERING

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

COVER: Traffic control and parking facilities are easy to detect in this excellent picture of downtown Dallas. (Courtesy of Thomas K. Cone.)

May We Offer . . .

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Frankly Speaking

RECENTLY there was considerable alarm expressed over the increased number of traffic engineering consultants in this country. It was the opinion of those concerned that this field might be overstaffed and that as soon as the postwar recovery program had been completed, many consultants might find it difficult to follow their profession.

In order to determine the stability of the future of a private enterprise of this type, we have interviewed several persons who are currently engaged in the private practice of traffic engineering. It is surprising to learn that almost all consultants are enthusiastic about the future. A majority believe that the present postwar work is only the start toward solving the numerous problems which will increase with time.

We have found that a number of consultants are known best for the more spectacular type of work. That is, by a survey of some large city. These surveys are not necessarily an index to the basic problems of traffic engineering. In many instances, city studies were conducted because municipal officials thought it was the thing to do, or that a traffic survey might serve as a good reference source. Little or no consideration was given to the specific problems at hand and the most economical means of solving them. So while the city work has obtained the most publicity, it is by no means the supporting factor of the consultant's livelihood.

Most consultants, we find, earn their living through less spectacular work. In one instance a consultant was retained to determine the most suitable means to expedite the collection of tolls at the approaches to a river ferry. In another case, traffic engineers were hired to facilitate the movement and parking of traffic at a football stadium. Neither of these cases received any publicity. But both point to the type of problem which will always require the services of a traffic engineer.

It is interesting to note the increasing use of traffic engineers in connection with the development of new community centers. Present difficulties in central business districts have influenced effectively the builders of shopping areas to give first consideration to traffic problems.

It is safe to assume that the traffic engineering consultant has a bright future although we may hear less and less of his work. It is, after all, the simple things in life that count.

Robert O. Swain

Editor

Houston Expressway Signal System

by W. J. VAN LONDON
Texas Highway Department

Fig. 1. Aerial View of Transition from 4-Street System to North Expressway.

THE Texas Highway Department, U. S. Public Roads Administration and the City of Houston are developing an urban expressway on U. S. Highway 75 through Houston from the north to the southeast. The route passes some five to eight blocks to the west and south of the central business section. There are only four streets leading to the west from the business area. These will be overpassed and suitable traffic interchanges provided. To the south 19 streets cross the expressway route in a distance of one and a half miles. About 75 per cent of the traffic enters and leaves the expressway route on these streets and about 25 per cent is traffic passing from one side of the business area to the other. Less than six per cent of the total is through traffic. Following are the estimated daily traffic loads in 1957: North-south streets crossing expressway route 150,000 to 200,000; expressways, both north and southeast, 60,000 to 70,000; through expressway traffic 25,000 to 35,000. Thus, of 120,000 to 140,000 expressway vehicles approximately 100,000 will move to and from the north-south streets.

W. J. Van London is Engineer-Manager, Houston Urban Expressways, Houston, Texas.

Freeway Facility

A freeway type traffic facility across these 19 streets, about one and a half miles long, which would have to be elevated, costing in excess of $10,000,000, was not considered practicable at this time. Therefore, a four street system with provisions for connecting to an elevated structure in the future was developed. The accompanying aerial views (Figs. 1 and 2) show the transitions from the four street system to the north and southeast expressways and the possible future elevated freeway. The four streets will have a minimum width of 54 feet providing two eight-foot lanes for parking and three twelve-foot lanes for moving traffic in one direction only. Thus, six lanes are provided on the south side for east bound traffic and six lanes on the north for west bound traffic.

Vertical Signals

The traffic on the four-Street System and on all cross streets will be controlled and directed by a double

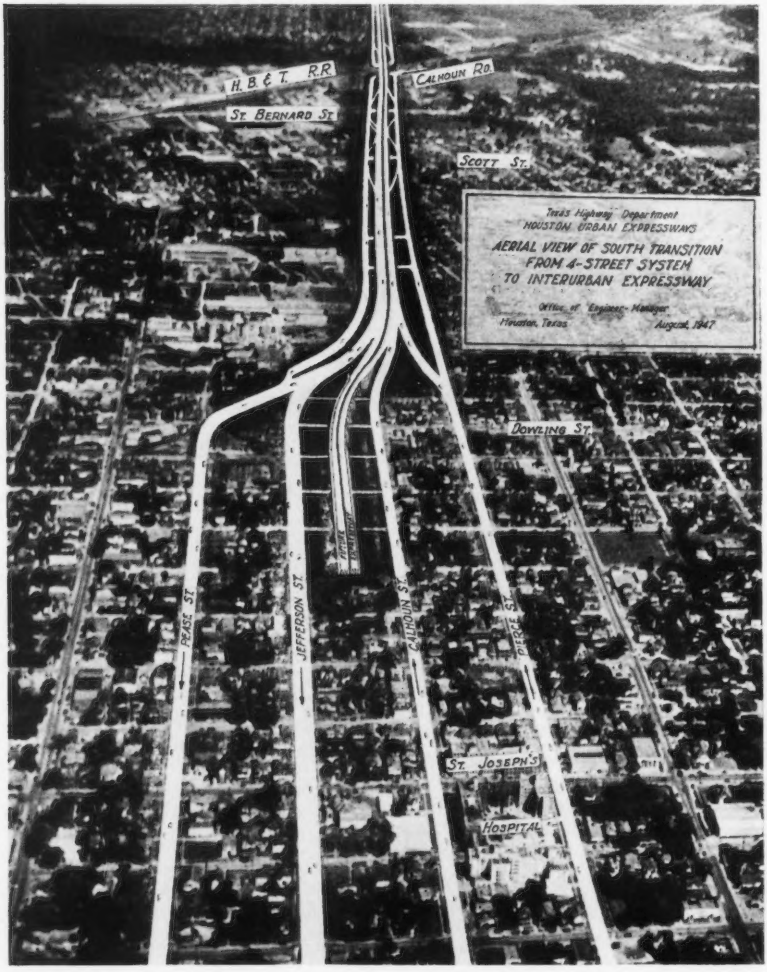


Fig. 2. Aerial View of South Transition from 4-Street System to Interurban Expressway.

vision, automatic, synchronized interconnected signal system. The signals will be vertical post mounted so as to be visible from all approaches on the far right and near left of the driver, and will be adjustable type with four face units, the bottom face being a directional arrow. All faces will be equipped with a hooded base light for illuminating an 18″ x 24″ informa-

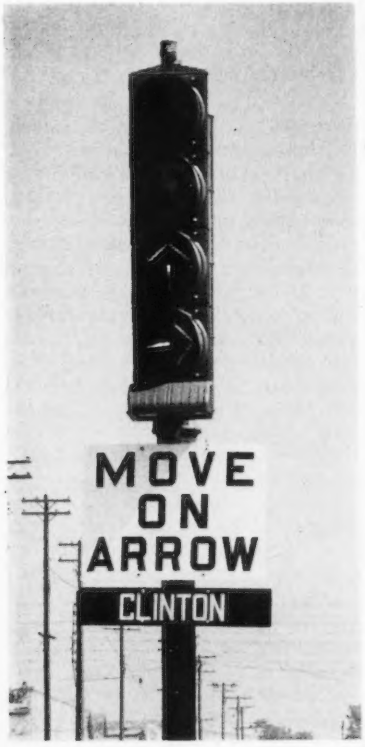


Fig. 3. Typical Signal Head Installation.

tional sign, such as, MOVE ON ARROW, a 5″ x 25″ street name plate, and where necessary a highway route marker. The accompanying picture (Fig. 3) is a typical installation.

Three dial secondary controllers will be used to provide automatically for adjustment of time cycles for variations in volume and direction of traffic and to permit or prohibit left turning, as required to facilitate traffic movement. These controllers will also be equipped with 15 time cycle gears, 5 for each dial, which will permit selected time cycles to 40, 50, 60, 70, and 80 seconds and will have flashing red and amber signals in either direction during low traffic density periods. A master controller for the system will not only keep all the secondary controllers in synchronism, but will automatically change all controllers from Dial I to either Dial II or Dial III as required to provide for the peak traffic periods. The master will also control the off-duty flashing period and the base light circuit. This will be accomplished by the use of four synchronous time switches providing 3 *on* and 3 *off* operations.

The signal system is so designed that, if properly operated, it will result in the minimum of vehicle stops and will direct and control the movement of large volumes of traffic as rapidly and freely as practicable, commensurate with safety.

TRANSPORT INSTITUTE

The second annual Highway Transportation Institute will be held October 28 through November 25 at American University in Washington, D. C.

PUBLIC SUPPORT ESSENTIAL

A plea for well organized, efficient public relations divisions among state highway departments as a means of building public support for the nation's highway programs was voiced recently by Hal H. Hale, executive secretary of the A.A.S.H.O., in a talk before the Western Association of State Highway Officials in Missoula, Montana.

Passage of the Federal-Aid Highway Act of 1944, Mr. Hale said, places responsibility for public acceptance of the federal-aid program on the shoulders of state highway officials; a public relations operation "far greater than they had ever shouldered before."

The Trouble Shooter

by J. E. P. DARRELL, *Member, I.T.E.*

THE usual article on traffic engineering describes some special technique for evaluating or solving traffic problems, or relates to some unique or outstanding improvement in highway facilities in which traffic engineering principles have been employed to insure safe and efficient traffic movement.

The traffic engineer in a state highway department has frequent occasion to study and solve important traffic problems and to participate in the design and operation of "super" facilities. But most of his time must be devoted to normal routine day-to-day matters that affect the greater number of people and relate to traffic conditions generally. In this respect the traffic engineer is very much like the family doctor or general practitioner who devotes much more of his time to the treatment of colds, headaches and other minor ailments than he spends in performing major operations. I believe all will agree that efficient and timely treatment of colds and sore throats has a greater and more beneficial effect on the general health of a community and will frequently obviate the need for more drastic and costly treatments.

Not All Romantic Work

That most of our existing roads and streets are outmoded and entirely inadequate to meet present-day traffic needs, does not require restatement here. These are the roads that generate the greatest number of complaints and determine to a major extent the reputation of the department and its support by the public. The improvement of this vast mileage to higher standards will require considerable time and may perhaps never catch up with the increasing traffic requirements. Thus the traffic engineer in a state organization must of necessity spend much of his time in doing the less romantic things of attending to the numerous problems which arise in an attempt to compensate, at least in part, for the deficiencies of the existing system of roads.

The smaller governmental units, especially the villages, depend to a great extent upon the state traffic engineers for advice and help in their efforts to prevent accidents and reduce congestion. Most of their problems are of a minor nature when compared to the difficult situations in our larger cities, but they are very real to the local people and the traffic engineer would be remiss if he failed to give careful attention to their needs.

Work for Uniformity

In Minnesota an attempt is made to do the routine and basic things well and to worry about the unusual cases and the more elaborate treatments when and as they arise. Much effort has been expended toward uniformity of traffic control regulations and ordinances, as well as in the use of traffic control devices by approaching local officials on a cooperative or partnership basis rather than through the medium of official orders. I believe this had lead to greater progress toward better and more uniform regulations than might otherwise have been the case. For instance, but for a very few glaring exceptions on which we

Mr. Darrell is assistant traffic engineer, Minnesota Department of Highways, St. Paul.

are still working, all parking on state highways has been changed over to parallel. This has been accomplished in most cases by getting the local community to revise their ordinances. Selling the idea usually takes a little longer than merely issuing an order, which of course we could do, but we believe it is the better way.

The traffic engineer is an advisor and consultant to the other divisions and other governmental units with the authority to specify the corrections or changes that might be needed. The actual installations are usually made by the construction or maintenance personnel under the technical supervision of the traffic engineer. Most of our traffic surveys are conducted by the planning survey division at the traffic engineer's request and in a manner approved by him. Similar cooperation has been maintained with the other divisions of the department, making it possible for us to avoid duplication of personnel by using existing field agencies in carrying out recommendations for traffic improvement. The procedure has worked out very satisfactorily and in addition to avoiding duplication of employes has resulted in much closer relations between the several divisions with consequent increased attention to traffic engineering requirements by the other divisions of the department.

Public Relations Official

The traffic engineer is the advocate, in the department, of the users of the highway, the drivers. It is his function to represent the motorists and other users and to see that traffic requirements are not subordinated to structural needs and other details of planning. This makes him an important public relations official in the department. Mr. John Public will rarely question the details or methods involved in the structural design of a road or bridge. But traffic conditions affect him more closely, and where is there a driver who does not feel that he is competent to solve traffic problems? Proper handling of complaints and suggestions take a lot of time, but it is a job that must be done and the traffic engineer is perhaps the logical person to assume this public relations duty.

A list of some of the things that keep traffic engineers busy most of the time shows that routine does not necessarily mean monotony. The average day may include any or all of the following activities: Reading mail and dictating replies; checking complaints; checking accident records file and the study of accident-prone locations; a special accident study; signing and marking problems; speed zoning; receiving visitors; conference with municipal delegations (municipal problems); conference with other officials (design, enforcement, driver control); some sort of committee work (perhaps an I.T.E. committee); checking designs and plans; study of a survey report; personnel problems and employe safety; field investigations or inspection; signing outgoing mail; planning.

Chances are that there will also be a speaking engagement at a luncheon or evening meeting for which some preparation must be made.

After all the traffic engineer is the trouble shooter for the department. This trouble shooting provides an excellent opportunity for closer contact and cooperation with other groups and officials and not only makes for better traffic conditions on all the roads, but pays off in better public relations for the department. It is the efficient and practical doing of the routine chores rather than participation in the occasional "headline" project that justifies the traffic engineering division and makes the traffic engineer an indispensible member of any modern state highway department.

New Developments in Signs

by FRED W. HURD, *Associate Editor*

A number of states are experimenting with colored route markers in large cities where congestion makes it difficult to follow standard markings. Field observations have shown that the colored markers have much greater target value than regular markers and the color scheme allows the motorist to follow the color through a strange city rather than the numerals on a route marker which are necessarily small. At important route junctions, the driver's attention is focused quickly on the color accompanying the directional arrows applicable to his route although they may be located in a cluster of other signs.

To obtain both day and night color effect the signs are reflectorized either by the application of glass beads on paint or by use of material composed of glass beads embedded in a flexible resin plastic sheeting.

Used in Texas

The Texas Highway Department reports that they first experimented with route markers consisting of stenciled legend and border on reflectorized backgrounds of various colors. With these, at night, the legends were "drowned out" by the diffusion of color from the bright background. "This effect was almost entirely eliminated by making the legend out of reflectorizing material of contrasting color." Thus, with both the background and legend reflectorized the light diffusion was overcome.

In June, 1945, the Texas Highway Department erected a trial installation of colored route markers in the City of Austin. The color combinations were:

U. S. Highway 81—White on Red background

U. S. Hghway 290—"Marine" Blue on Yellow background

State Highway 29—White on Green background

State Highway 20—White on Blue background

This installation resulted in very favorable public reaction. In 1946, certain combinations of colors were assigned to several important routes within the state. These combinations were embodied in a new Highway Marking Manual to achieve centralized control. Where colored markers are used, they begin and end at the city limits and the same color combination is used on that route throughout the state.

Favorable Comment

The Mississippi State Highway Department has made a similar trial installation of colored route markers on three routes in Jackson. Reflectorized background colors of red, blue and yellow were used with the conventional legends and borders stenciled in white or black. It is reported that the colors can be seen for one to two blocks and that considerable favorable comment has been made by those who have been guided through the city on the basis of color alone.

The Highway Department of Georgia is planning the use of red, green, blue, yellow and silver background colors. It is reported that all U. S. Highways in the state can be assigned these colors so no two highways with route markers of the same color will intersect or overlap. The sign proposed for Georgia is a 24″ x 24″ plate upon which a 21″ x 22″ shield will be centered. The shield will be standard

in shape with black letters on white background. The color scheme will be applied only to the background portion of the 24″ square plate falling outside of the shield. Directional arrows will also be placed on a 24″ x 24″ plate with a 3″ border in the color of the accompanying route marker. It is proposed in Georgia to use colored route marker backgrounds on all U. S. routes at rural and urban junctions and through all urban areas.

Those who have experimented with colored route markers feel a definite need for further research before widespread use is recommended. Some of the questions to be answered are:

(1) What is the day and night legibility and target value of various color schemes?

(2) What color combinations giving good contrast and legibility are available?

(3) How do legibility values of colored markers compare with those of the conventional marker?

(4) What background colors will give good contrast where several markers are erected on the same assembly?

(5) What is the effectiveness of colored route markers where colored advertising signs are numerous?

It is apparent from all current reports that there are no satisfactory methods at present for measuring and evaluating the relative effectiveness and advantages of the various types of color schemes.

The use of colored route markers has not yet been considered as a National Standard but the excellent public reaction where they have been used cannot be ignored. If colored markers are proven to be advantageous, it would be highly desirable to establish color systems for U. S. Highways according to a unified and coordinated national plan, as has been done for route numbers. In order to further review the possibility of extensive use

Left: Denver Street Sign
Right: Alabama minute map.

of colored route markers and the resulting need for uniformity, the entire subject was discussed by traffic engineers at the September meeting of the A.A.S.H.O. in New York City.

Denver Street Sign

A new type street sign now in use in Denver (see cut) is a four-sided tubular box mounted vertically with vertical legend. The sign is made from 16 gauge metal cut to 16″ x 32″. The iron plate is bent the long way to form a tube with a square cross section. Each side of the tube is 4″ wide by 32″ long. The edge where the two ends of the metal meet is spot welded in several places. The square tube is then placed in a cleaner bath after which it is dipped in a metal primer where the inside and outside are well coated. After buffing, the tube is sprayed with two coats of black enamel. The street name with letters in a vertical column is stenciled in white.

The supporting post is a 1½″

wrought iron pipe 7′ long with two holes drilled in the upper end to match holes in the sign for mounting and a key pin in the base to prevent turning. The post is coated with aluminum paint and is set in a concrete base.

Simple Installation

Installation of the sign is accomplished by simply slipping the tubular box over the pipe and securing by placement of two stove bolts in the holes previously drilled in the sign and pipe. This installation places the bottom of the sign about 28″ above ground level.

A similar type of sign, only triangular in cross section was formerly used in Denver but public reaction showed beyond doubt that the four-sided sign is preferred.

It is probable that this sign presents the same difficulties as any vertical sign intended for urban use. The overall height of the sign does not lend itself to 7½′ mounting for visibility over cars parked at the curb. To obtain maximum visiblity distance at low mounting height, the signs are placed as near to the corner as possible. Reflectorization of these signs has been discontinued as the white lettering on black background seems to serve the purpose for the visibility distances involved.

Minute Map Signs

During the past 18 months, a new type speed and destination sign has been on trial on U. S. 78 and the Birmingham-Montgomery Highway in Alabama. The sign, as shown in the photograph, is 72″ x 30″ with black legend on a reflectorized background. on U. S. 78 the background is white as compared with a yellow background on signs installed on the other highway.

The upper panel of the sign shows the distance to the next sign and the maximum safe driving speed for the intervening section of road. A proposed change in the sign substitutes the word "limit" for "drive" so as not to instruct motorists to travel at a specified speed. However, the driving time shown on the lower panel is based on the recommended speed stated on the sign.

On the lower panel the cross bar shows the location of the sign, telling the motorist where he is. Opposite the bar, the figures indicate the driving time to the next large city which, in the case of the photograph, is one hour and ten minutes to Montgomery. The solid black line represents the section of road already traveled while the parallel black lines indicate the road ahead.

It is reported that additional highways in Alabama are to be signed with minute maps as a result of this test and that test installations are to be made in New Mexico, Oklahoma, Arizona and the State of Washington.

It is obvious that the roadway alinement is, of necessity, shown on a very small scale. The signs, therefore, should not be placed near the approach to a curve where they may be confused with advanced curve warning signs. The amount and size of copy on the signs should also be controlled to provide time enough for the driver to read the sign when travelling at the recommended speed.

RICHMOND PARKING AUTHORITY

In order to speed up progress in meeting her parking problem, Richmond, Va., now has in operation a Parking Authority composed of twelve members. One-half of the membership are citizens-at-large appointed by the Mayor, with three members appointed by the Board of Aldermen and three by the City Council. The Authority is empowered to make studies of parking needs and to acquire, operate or lease parking facilities, the latter operations being subject to city government approval.

Why Toll Roads?

by JOSEPH BARNETT
Public Roads Administration

(Editor's note: This paper was prompted by a resolution of the Washington section of the Institute of Traffic Engineers. Speaking extemporaneously at the June meeting, Mr. Barnett's remarks were so enthusiastically received that the Washington membership desired to make this information available to the readers of Traffic Engineering magazine.)

WE ALL HAVE observed the increase in traffic since the lifting of restrictions on the purchase of gasoline and we also have noticed the increasing number of new cars. It does not require much imagination to visualize conditions when the amount of traffic increases to beyond that known before the war. The automobile industry is producing at the rate of about 4,500,000 cars a year and since we junk about 2,000,000 cars in an average year, (only about ¾ million were junked in 1946) there is a net gain of perhaps 2,500,000 vehicles annually. Recent figures testify to the increasing usage per motor vehicle and traffic conditions are destined to be unsatisfactory at many locations. In our cities congestion of appalling proportions will be almost inevitable.

Traffic congestion in cities will be relieved only by a multi-pronged attack embodying the following improvements:

1. The construction of new arterial routes and improvements of existing ones for accommodation of heavy volume, free-flowing traffic.

2. The improvement of city streets for the proper distribution of traffic and the servicing of adjacent property.

3. The solution of the terminal problem by improvements in facilities for parking and for the loading and unloading of goods.

4. The improvement of the transit system, particularly in the larger cities.

5. The improved operation of existing facilities now available.

This broad program will cost money. The number of facilities required to meet increasing traffic needs does not increase at the same rate as the traffic but at a greater rate, particularly in urban areas where interference due to cross movements increases at a geometric rather than an arithmetic rate. Superimposed on the rapidly-growing need to provide adequate traffic service is the condition brought by the lower value of the dollar. In the highway field the current dollar is worth about 60 per cent of the pre-war dollar. Every state highway department, operation; construction; maintenance; administration; has increased in cost about two-thirds. The cost of needed highway facilities, estimated at the increased unit prices, results in a financial requirement more than twice the pre-war amount. Some of these greater dollar needs will be offset by the traditional increase in efficiency of highway design and construction, but we cannot continue to expect the virtual miracles of increased work for less cost.

Funds Required

Highway administrators are frankly wondering where they are to get the necessary money. Legislators have approved increases in motor vehicle taxes in some instances but in several states the proposal has been rejected. No wonder attention is drawn to a means of obtaining revenue that has been used to only a limited extent heretofore, the direct toll.

Toll highways have a tremendous appeal when examination is only

superficial and we would do well not to minimize the importance of this attraction. The numerous bills introduced in state legislatures form ample evidence of the interest in this form of additional taxation. This interest is not hard to understand. The arguments advanced for toll roads are opiates which can lull motorists to slumbers and dreams which are pleasant to the harassed administrator short of funds to meet essential needs. They can make the motorists aware of the serious and far-reaching dangers inherent in toll financed facilities.

Cost to User

Why not toll roads? Let us look at the claim made for them. The bankers are ready to sell bonds and raise the money for them. Consulting engineers are willing to design them. Contractors are eager to dig their teeth into long, heavy highway jobs, possibly less hampered in many particulars than on other public works. The cost is borne by those who use the road and no one is compelled to use them. When the bonds are retired the road becomes free. The highway department is relieved of the burden of construction and, for many years, of maintenance, thus releasing its normal revenues for much needed maintenance and improvement of the State's primary and secondary systems. High type facilities are provided the public in a short time, whereas with normal revenue they are likely to require several years. These are truly appealing arguments.

Toll roads, however, are not all milk and honey. There are serious and profound objections to them, and it is advisable to study all their implications.

Tolls First Tax

Tolls were almost the only means of financing highways when there were no public agencies responsible for their development. The turnpikes of the nineteenth century were such highways. But the extensive highway system we now have did not come about with the aid of direct tolls. While toll facilities such as ferries, bridges, and tunnels, which cross the natural barriers of rivers, have proven desirable and, for the most part, acceptable to the public there are almost no toll highways. The reason is the fact that in only rare instances can the cost be supported by tolls. This was demonstrated in the report entitled, "Toll Roads and Free Roads," House Document No. 272, 76th Congress.[1]

The only modern and truly toll highway now existing as a major artery is the Pennsylvania Turnpike. It is unique in that mountain ridge barriers lie across the desired routes of travel and tunnels through these barriers combined with a splendid highway make it economically feasible for many vehicles to pay the toll. It is located in a rural area where some of the disadvantages of toll highways are not experienced. Despite these advantages and a substantial government subsidy amounting to 40 per cent of the initial cost, the Pennsylvania Turnpike has had a precarious financial existence.

Parkways Clarified

Tolls are collected on the Merritt Parkway in Connecticut and will be collected at two points on the Westchester County, New York, parkways. These parkways are not toll highways in the sense that their construction cost is supported by tolls. They were not designed for the collection of tolls. Advantage is being taken of the inertia of most motorists manifest in their willingness to shell out the magical thin dime rather than protest, in order to obtain from them a little additional revenue. There are signs that

1 Available from the Superintendent of Documents, Washington, D. C. Price 75 cents.

Sketch of toll road interchange.

the patience of motorists in that section is beginning to be overtaxed.

A toll highway is now under construction in Maine. Here, also, conditions are unique in that a large part of the traffic which will use it is recreational and seasonal, and the location cuts across numerous routes for travel between the interior and the coast. Its justification is not as clear cut, however, as the Pennsylvania Turnpike. The Maine Turnpike embodies many of the objectionable features of toll highways. One of the principal objections is the limited number of points of interchange. This denies the facility to much short haul traffic which invariably is the most of our total traffic. It is reported that interchange on the Maine Turnpike was not justified where the tolls which would be collected at a point would be less than about $25,000 annually for a period of 23 years. This resulted in designing for only three interchanges in addition to the terminals in a length of 47.4 miles, or an average distance between points of interchange of nearly 12 miles. In addition to restricting the use which will be made of this splendid facility, the collection of tolls will result in wasting at each point of interchange most of the $25,000 annually, for this amount can only cover the cost of collecting tolls and the annual cost of the improvements needed for toll collection.

No Congestion Relief

The economic impracticability of providing for toll collection at frequent points of interchange condemns toll highways as a means of relieving traffic congestion; particularly in urban and suburban areas. A free-flowing artery for large traffic volumes in urban areas must offer a wide choice of destinations. Points of ingress and egress must fit local traffic needs and be located where proper distribution can be effected. The large areas required for entrance facilities and toll collection generally are not available at these points and if available are costly. It is natural for designers of a toll highway to keep down initial cost and cost of operation by keeping points of interchange to a minimum. Thus a toll highway becomes an inflexible facility with limited use compared to a free facility even assum-

ing that drivers are willing to pay a direct toll in proportion to use.

In an analysis of possible toll highways for the State of Illinois, ten routes were chosen for detailed study, 3 in rural areas and 7 in the urban area of Chicago. Assumed direct toll charges were ½ cent per mile for passenger vehicles and 3 cents per mile for trucks. None of the facilities were found to be self-liquidating except the Northwest Route in Chicago, for which the base toll rate was increased 25 cents for the 11.6 miles, about four times the rate first assumed. Of significance is the fact that in all cases the estimated use as a toll facility was only a part of the estimated use as a free facility. Even in the case of the Northwest Route, use as a toll road was calculated to be about 12 million vehicles annually, or only 40 per cent of the estimated 30 million using it as a free facility. The three rural routes showed use as toll facilities of 60, 60, and 73 per cent and three other urban routes, 40, 40, and 28 per cent of estimated traffic as a free facility.

Collection Costs High

A free highway costs less than a toll highway of equal merit. At points of interchange, for example, a toll highway generally demands that all eight turning movements be brought to one or at most two toll collection points. [See illustration.] On free highways this is unnecessary. In addition elimination of unimportant highway grade crossings may be deferred where safe operation is assured, whereas all crossings must be eliminated initially on toll highways. A generation back the New Jersey authorities considered making the Pulaski Skyway a toll facility. It was ideally suited to the collection of tolls because it was a high-level structure over two navigable streams. The cost of providing toll plazas and toll collecting facilities at each ramp was so high and other changes to insure free flow to and from the facility to a volume equal to its capacity were so great that the idea was abandoned. The same reasoning may have been one of the factors in the decision by New York State authorities to abandon the idea of making their 420-mile Thruway a toll highway. It is now under construction as a free expressway of very high standards.

Sometimes a toll highway may not attract sufficient traffic to eliminate the need for improving parallel free facilities, whereas a free highway of the same standards would. In the urban projects of the Illinois study the volumes of traffic which, it was estimated, would not use the toll highways were much greater than the volumes which would use them. Surely the former road users would not be satisfied with inferior and inadequate facilities and would demand improvements to the existing roads and streets.

Materials Critical

There are few, if any, locations where conditions are suitable for the development of toll highways of considerable length. To justify a toll road there must be a combination of need, cost, and benefits such that the toll highway will be used by a sufficient number of paying patrons to cover, without subsidy, the annual cost of maintenance, operation, and financing. Even where conditions are wholly favorable there is serious question regarding the wisdom of public officials sanctioning the construction of toll roads. Highways are constructed by men with materials and equipment. These are not in abundant supply. Public officials must give serious thought to the question, "Shall these commodities, limited in quantity, be applied to toll highways of limited use or shall they be applied to the construction of free highways of compar-

ECONOMIC LOSS IS REFLECTED BY RATES

by J. A. CARROTHERS
Associate Editor

The settlement of a claim following a traffic accident is more than an exchange of money between an insurance company and mechanic or between the company and an injured party. The settlement becomes in effect an "assessment" against every policy holder in the community.

This community aspect to every traffic accident comes about through the mechanics of rate making—the determination of the premium rate to be charged for automobile liability coverage in a given year. An increase in the total cost of claims for any territory results in an increase in rate for *every* policy holder in that area.

The fact that accidents are truly a drain on community resources was made more obvious as each policy holder had to dig deeper to meet premium costs rising since the war. *The increases in premiums for the last two years has made this fact even more evident.*

Control Index

In normal times the automobile liability insurance premiums paid by policy holders in a particular rating territory are adjusted each year on the basis of the accident and claim data of previous years, the calculations being based upon the latest 5-year loss experience of the companies. The rate, then, in normal times reflects the *economic loss* resulting from automobile accidents and also gauges the effectiveness of traffic control program in the district.

The story behind the increases in premium rates for 1946 and 1947 however, is more than a story of the statistical treatment of paid and outstanding claims, number of insured cars, frequencies, and loss ratios.

According to William H. Brewster, manager of the Automobile Division of the National Bureau of Casualty Underwriters[1], New York City, the reason for the increases of the last two years goes back to the time of gas and tire rationing. Detailed statistical rate analysis based on pre-war experience became of no value as restrictions on the use of automobiles became effective in 1942. Bodily injury and

---

able design, at less cost, for use by all toward the relief of traffic congestion?"

The answer is obvious to one who has the over-all development of a highway transportation system in mind; a system which will serve the economic and defense needs of the nation. Numerous toll roads will retard the normal and orderly development of our road system for by attracting part and only part, of the traffic using a free system, it is still necessary to maintain and improve the existing roads. The presence of a toll facility moves ahead the time when it is economically feasible to improve the existing roads to high standards. This is not characteristic of toll bridges, tunnels, and ferries. A toll bridge differs but little from a free bridge as far as service to traffic is concerned. The terminals are located at the ends and they would not be located elsewhere if the bridge were free. The terminals or access points and their design on a toll highway, on the other hand, are quite different than on a free highway. The flexibility is lost, the service to short haul traffic cannot be given, and congestion, in urban areas particularly, is not relieved. The orderly development of a free highway system in the manner which contributed to the great and rapid growth of our country is the better plan.

property damage rates were then adjusted *solely by judgment*. Member companies of the National Bureau and its 70 subscribing carriers *reduced* premium rates 30%, on the average, when gasoline rationing began.

After gasoline rationing ended in August, 1945, a similar process of judgment was necessary to increase rates. That increase was not set, however, to correspond to pre-war rates; it was assumed that practices of car and tire conservation by automobile owners would carry over after restrictions were lifted—and the rates were held to what proved later to be an entirely too conservative level.

Accident Cost Up

Traffic accidents cost considerably more money than they did before the war. Labor and material prices rose rapidly, damages asked and awarded were in scale with the spiraling cost of living. The statistics which normally point up such trends were absent.

"Without the benefit of detailed statistics which the war conditions eliminated", stated Mr. Brewster, "our judgment rates proved to be far too conservative in the light of the actual developments in 1946 as to accident frequency and claim costs. Had we possessed the true picture of the situation in May 1946 we would have then put into effect a single increase equal to the combined increases made at that time and in February 1947".

Property Claims High

The National Bureau figures show that in 1947 the actual cost of settling the average bodily-injury claim was at least 30% more than in 1941, and the average property-damage claim at least 80% more than 1941.

For the three states of Louisiana, Texas, and Virginia, for which complete rate-making statistics were kept throughout the war years, the average incurred claim costs were 43% higher for bodily injury in 1945 as against 1940-41, and 101% higher for property damage. In 1945 Massachusetts incurred claim costs for bodily injury were 38.2% over the 1941 levels. For bodily injury and property damage combined, in 1945, the stock companies licensed in the State of New York suffered an underwriting loss of about $31,000,000; for 1946 the amount of loss rose to a very sizeable figure of about $80,000,000.

"Such loss experience cannot continue if insurance companies are to discharge their obligations to policy holders and to claimants", said Mr. Brewster.

The process of applying detailed statistical procedure in the determination of automobile liability rates is again under way, with the price of automobile accidents still high. The only definite promise for reducing the increased economic strain of accident losses appears to lie in the accident prevention efforts of the insurance industry and of educators, enforcement officials, and engineers.

(1) The National Bureau of Casualty Underwriters is a non-profit, unincorporated association of 38 member stock insurance companies and is licensed as a rate-making organization in every state which provides such licensing. The Bureau acts as a statistical agency for the state of New York and many other states. The data in this article was obtained from the Automobile Division of the Bureau, headed by Mr. Brewster.

The average top speed permitted motorists on the open highways of the United States is 50.7 miles per hour, but nine states have no speed limit whatever, reports the National Conservation Bureau. Safety experts of the Bureau point out that no matter what the legal speed limit may be, the "safe" speed is still left to the judgment of the man behind the wheel. Thus, heavy traffic or slippery pavement in a 50-mile zone, may cut the safe speed far below that legal limit. Drive at a safe speed at all times for your own sake and the safety of others.

NEW DEVELOPMENTS IN TRAFFIC ENGINEERING

by CHARLES S. LECRAW, JR., *Associate Editor*

There is a definite lack of fundamental knowledge needed to relate traffic conditions, desires and behavior to street and highway planning, design and operation. This fact is clearly established and research projects are suggested in an excellent article entitled "Intensification of Traffic Research," by Roy W. Crum, Director, Highway Research Board, and Wilbur S. Smith, Associate Director, Bureau of Highway Traffic, Yale University. The article appears in the July, 1947 issue of American Highways, published by the American Association of State Highway Officials. Mr. Crum is an Affiliate member, and Mr. Smith is Vice-President of the *Institute of Traffic Engineers.*

Highway planning survey data, compiled by agencies of state highway departments, have been a major contribution to broad planning and have established the basis for much research. This type of work must be extended in order to obtain data on what the authors describe as "from the surface up" characteristics of traffic. The responsibility for initiating research must be assumed by the various state highway departments. Many of the simple and routine activities of highway agencies may produce basic findings of general value when properly analyzed.

It is pointed out that research information, derived from special studies or from day-to-day activity, must be published and disseminated. Many state highway departments have information which would be of inestimable value to agencies in other sections of the country. In many instances, important pieces of an unfinished and complicated traffic puzzle might be furnished if information is disseminated.

The success or failure of state highway departments in dealing with problems in urban areas may well depend upon the efforts placed on urban traffic research. Much of the information required to improve traffic operations on existing or planned highways will have to come from data which can be collected only in urban areas. The ideal way to obtain such data is through cooperative studies and researches between the state and city agencies.

Agencies at the national level may assist the state highway departments in many ways. This assistance is particularly valuable in avoiding duplication of efforts between the states. Several agencies are discussed in the article, and the place of each in traffic research is explained. These agencies are:

U. S. PUBLIC ROADS ADMINISTRATION which is working with the various states as well as carrying out individual research projects. P.R.A. has led the way in the development of survey techniques and in the development of instruments for traffic measurements.

HIGHWAY RESEARCH BOARD. This organization, through its committees, annual meetings, and publications has become well known in highway research. The newly appointed Engineer of Traffic and Operations will assist the work of the H.R.B. Traffic and Operations Department in furthering traffic research.

EDUCATIONAL INSTITUTIONS. The equipment and staff of colleges and universities are often ideally suited to research, and joint projects with state highway departments frequently produce outstanding

results. Studies conducted at Purdue University, Iowa State College, and the University of Texas are well known examples of such cooperative activities.

NATIONAL GROUPS AND INDUSTRY. Manufacturers of traffic equipment and national agencies with interests in highway transportation are anxious to assist state highway departments and others in research activities.

The article concludes with a discussion of fundamental requirements for successful traffic research. These requirements include:

1. Define the initial project so that its scope is not too comprehensive.
2. Present facts in a manner logical and pertinent to the problem under consideration.
3. Prepare a brief summary of findings for highway administrators and others too busy to study the full report.
4. Negative findings from research are often as valuable as positive ones.
5. Present results of study in such form that they will be of direct and practical value.

The Texas Highway Department has established a Division of Traffic Services which includes traffic engineering, landscaping and information.

By pointing up the need for research in highway traffic fields by outlining methods of approach, and by suggesting both simple and comprehensive projects, the article on "Intensification of Traffic Research" by Messrs. Crum and Smith should do much to stimulate new and extended activity which will lead to the provision of facts urgently needed for traffic improvements.

BUSINESS LEADERS DISCUSS URBAN PROBLEMS

by LeVerne Johnson
Managing Editor

At the call of the Chamber of Commerce of the United States, some 500 business and civic leaders, city officials and traffic and planning technicians gathered in Washington, D. C., on September 11 and 12, to give "clinical attention to some of the more serious ills plaguing our cities today", according to Paul G. Hoffman, president of the Studebaker Corporation, and Chairman of the Board, Automotive Safety Foundation.

Highlighting the Businessmen's Conference on Urban Problems were addresses by Earl O. Shreve, president of the Chamber and vice-president of General Electric Company; Thomas H. MacDonald, commissioner, Public Roads Administration; Jay D. Runkle, vice-president and general manager of Crowley, Milner and Company of Detroit, and Mr. Hoffman.

Mr. Hoffman emphasized in his remarks the urgency of improving the urban traffic conditions, pointing out that average trip lengths on our highways are about 12 miles and that what people really want to do is "go to town". Unless the desires of the people to get into our cities and park their cars can be met effectively, he said, the usefulness of central business districts will be seriously reduced, which means depreciating land values and less tax revenue to meet fiscal needs.

Mr. Shreve was equally emphatic in pointing out urban transportation needs. He said businessmen in cities must examine the extent to which municipal resources can be relied upon to meet transportation needs, and to what extent there can be reliance upon state and federal aid. He called upon

Chambers of Commerce to appraise the possibilities of strengthening the financial resources of city governments independently of the federal government. He was not pessimistic of the ability of cities to meet and solve their problems and to plan for their future. He cited as evidence of effective planning and action the development of our city sanitary and water systems, controlled residential developments, and the work of private utility companies. Throughout his talk Mr. Shreve emphasized the need for effective planning, based "upon facts and upon their competent interpretation."

Commissioner MacDonald spoke on the subject "The Federal Aid Highway Program and Its Relation to Cities". He described briefly the four parts of the federal aid plan, namely: (1) the national system of interstate highways, (2) the original federal aid system, sometimes known as the "seven per cent system", (3) urban federal aid highway connections, and (4) the principal system of secondary and feeder roads. He pointed out that together, these four systems will probably serve 85 per cent of the vehicle miles of travel in the country with not more than 20 per cent of the total mileage of roads and streets.

Mr. MacDonald emphasized the increased attention being given to urban highway problems, pointing out that some 138 miles of new urban expressways were built or are being built under the federal aid program. This, he said, will double the mileage of such expressways. He advocated that federal aid extend over more than three-year periods, stating that many of the projects are so large that they often must be programmed for completion over a number of years. He said the need now is for action—not just talk.

Mr. Runkle made an eloquent plea for civic interest and civic leadership to support city officials in their efforts to preserve the downtown districts of cities through traffic, parking and other improvements. He said that "if customers in sizeable numbers cannot get into the center of the shopping district from all parts of the city with convenience, comfort and speed, the downtown section is sure to suffer competitively; and if it suffers, the whole city will suffer ultimately".

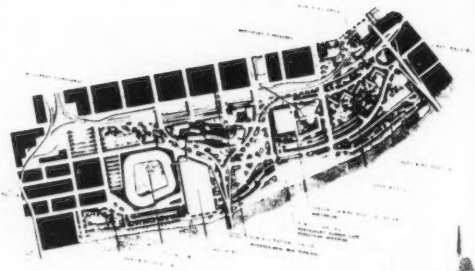
Mr. Runkle proposed to implement his idea for better civic leadership through the formation of a citizen's committee, to be known as "The Downtown Development Committee", to act in an advisory capacity to city officials.

The four general sessions of the conference, which were interestingly set up as panel discussions, were on the subjects of (1) relations of city planning to community development, (2) traffic congestion, (3) off-street parking, and (4) rebuilding blighted areas. Added interest was achieved through inviting audience participation.

Stenotype notes were taken of all sessions and proceedings will be edited and published at a later date. They will be made available free of charge to persons who attended the conference, and at nominal cost to others.

In addition to a number of Institute members in attendance, G. Donald Kennedy, D. Grant Mickle, Donald M. McNeil, Robert A. Mitchell, and Harold F. Hammond participated in the program.

Last summer fast motor coaches were operated over the famous war-built Alaska Highway in each direction under the management of the British Yukon Navigation Co.



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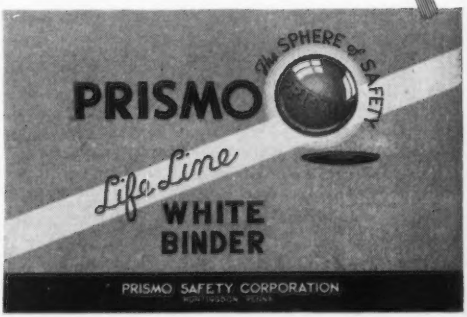


*Write for Bulletin 461 (Prismo Life Line), and for Bulletin 547 (Prismo Sign Kit).

OPEN DISCUSSION

by F. M. KREML, *(Affil. ITE)*

A few weeks ago Capt. William P. Odom took a carefully groomed converted A-26 attack bomber off the runway of a Chicago airport and headed around the world. Seventy-three hours later he brought his sleek plane into a screaming dive over the control tower of the same field to establish a new record for around the world flight.

Such flights, and the routine flights of commercial airlines, have made the world peanut size. Whether we wish to acknowledge it or not, the world is our neighbor. And whether we recognize it or not, our technical knowledge and skills have surpassed our political and social development to an extent that endangers our entire civilization.

It is inevitable that increased speed and range of communication and transportation is hastening world-wide standardization. As a principle, nation-wide and world-wide uniformity of many customs is desirable. Among these are the clock and calendar, weight and measures and money and language. Such "standardization" promotes commerce, reduces cost of education, simplifies industry and reduces international and inter-regional misunderstanding.

The questio.s then are not whether world-wide standardization of traffic signs is desirable or will eventually evolve, but rather:

(A) How soon

(B) What form shall it take

(C) Who will stand the cost of investment required in making a change, our nation or some other, our generation or the next?

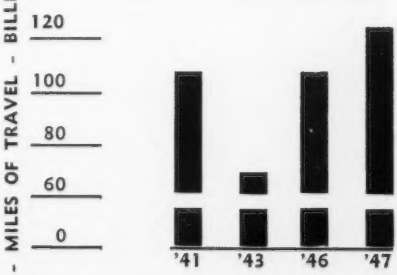
It is generally agreed that the sooner standardization comes about the better. It will be a slow process no matter what efforts are expended.

As to what form, obviously the best possible form we can devise at the present should be adopted. Our non-participation in League of Nation standardization is to be regretted, but this does not warrant continued isolationism. Certainly, if some international signs are better than ours we should adopt them at once. If some of ours are better, we should try to have them accepted.

The cost of change is not so great as might be supposed. If all new signs placed are of the new model, a couple of decades will see us well on the way to uniformity, less if commercial interests seize upon the possibilities with their usual vigor.

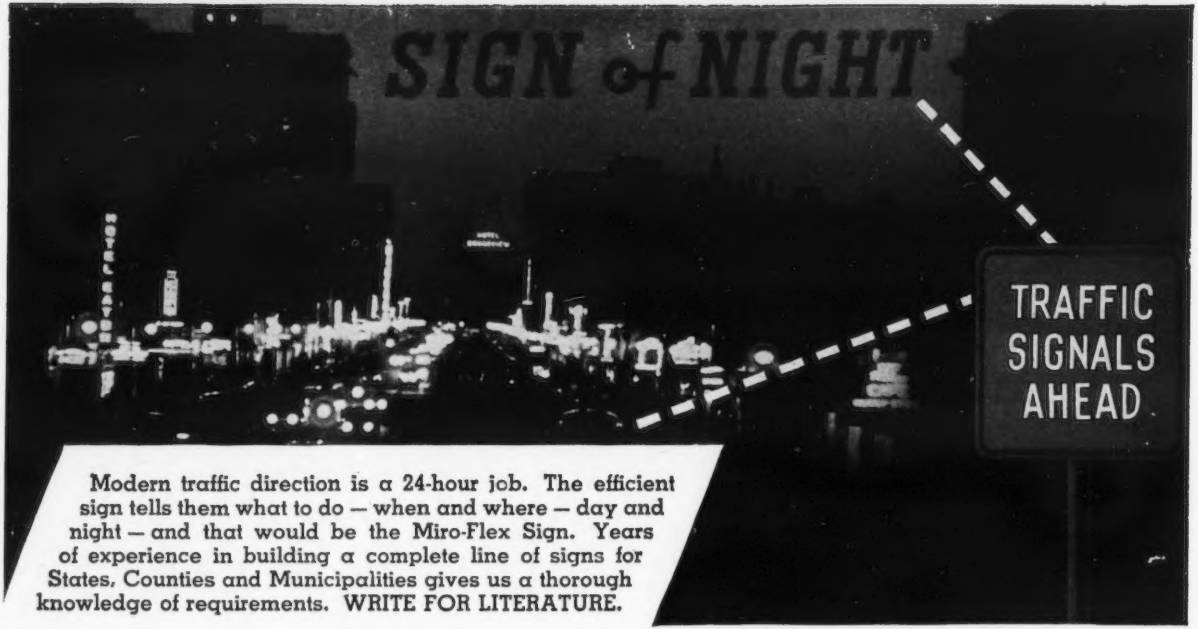
Progress made in the United States in standardizing highway signs is creditable. It was achieved, not solely through government, but through a cooperative endeavor by industry, safety organizations, civic groups and business leaders. If such uniformity is to be achieved on a world-wide basis it must have the cooperation and assistance of similar groups from all nations.

TRAFFIC TRENDS



TRAVEL ON RURAL ROADS FOR FIRST EIGHT MONTHS OF 1941, 1943, 1946 AND 1947.

[Based on Public Roads Administration Data]



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ACCIDENT PREVENTION HAS HUMAN ELEMENT

Numerous surveys have revealed that a small minority of motor vehicle operators are responsible for the vast majority of accidents, according to Dr. F. L. Ruch, Professor of Psychology University of Southern California and Vice President of the California Safety Council.

Dr. Ruch said, in an address in San Diego where he presented the Council's Safest City Trophy, that studies show accident-prone drivers to have one or more of the following characteristics: (a) they are physically ill; (b) they are ignorant or untrained; (c) they lack inborn aptitudes; (d) they are emotionally unstable.

The modern community, whether city or state, has many resources at its disposal for attacking the problem of recognizing and correcting these human characteristics before too much damage is done.

"The problem of the physically ill driver is obviously one for the physician rather than the psychologist, and I will have little to say about it other than the recommendation that the physicians of this community and other communities rise to meet this challenge," said Dr. Ruch.

He said further, "The driver who has accidents because he is ignorant of traffic regulations and of the proper operation of a motor vehicle requires the coordinated application of better law enforcement and more extensive education efforts in our public schools.

"The driver who has accidents because he lacks the inborn qualities of brain and muscle which we call *aptitude* is not susceptible to education and must be screened out through the installation of scientifically constructed tests similar to those developed by the United States Army Air Forces for the selection of flying personnel.

"I am happy to report that large transit and trucking concerns are already engaging in basic research along these lines. Eventually precise standards will be available which will permit more effective screening out of the accident-prone driver at the point of licensing.

"The driver who is emotionally unstable is often one and the same as the drunk or drinking driver. In this group we find the worried and the hostile person. Such drivers feeling inadequate in some way frequently use the automobile as a projection of their egos. The man who is harmless against a nagging wife at home or has a harsh boss at the office may take it out on the defenseless pedestrian. It is important to note that the frustrated person who uses his automobile in an aggressive manner is not conciously aware o fthis fact. To make him realize his unconscious motive is frequently enough to improve his driving behavior."

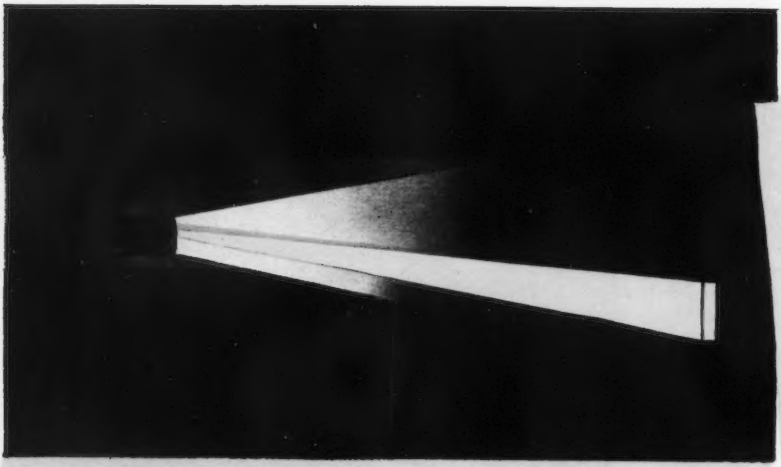
To overcome these physical and mental limitations of drivers, Dr. Ruch recommended:

A) On the engineering side more attention to the limitations of the human being;

B) On the enforcement side eliminate the "Eye for an Eye and tooth for a tooth" philosophy.

He explained that once an offender has been apprehended, the court should have technical facilities for determining whether the offender is ill, ignorant, lacking in aptitude or emotionally unstable, and facilities for the treatment indicated.

"We must also frankly face the fact that many offenders can never be rehabilitated through application of our present knowledge of human behavior. These must be denied the opportunity to drive through revocation of operator's license."



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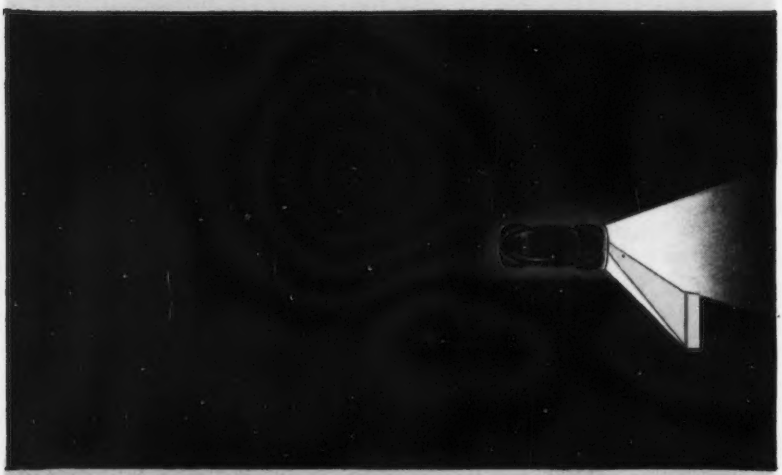

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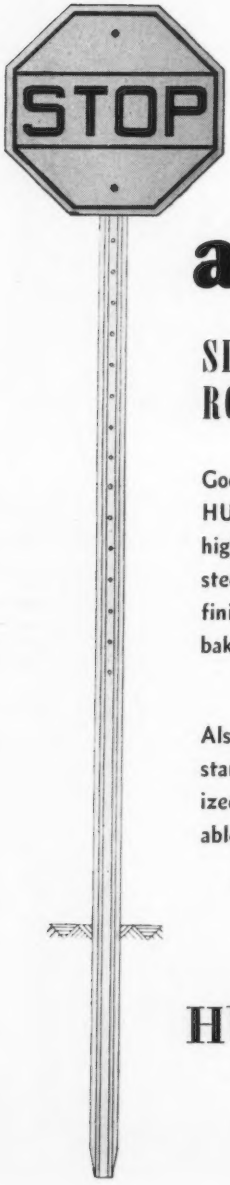

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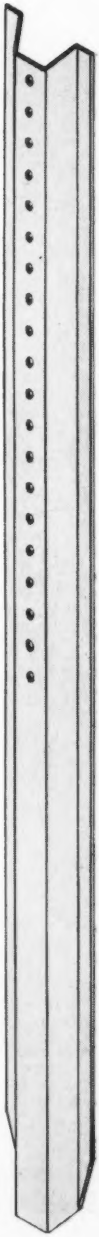
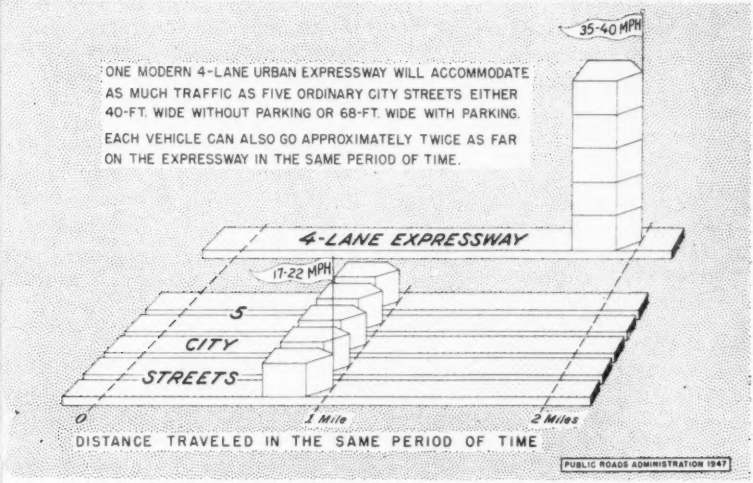


URBAN EXPRESSWAY AND CITY STREET CAPACITIES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BALDOCK ELECTED AASHO PRESIDENT

by J. A. CARROTHERS,
Associate Editor

The five-day program of the 33rd annual meeting of the American Association of State Highway Officials closed September 26 with the installation of officers. R. H. Baldock, Chief Engineer, Oregon State Highway Department, is president, and W. W. Polk, Chief Engineer, Illinois Highway Department, first vice-president. Mr. Baldock has been with the Oregon State Highway Department since 1910 and is chairman of the A.A.S.H.O. Committee on Maintenance and Equipment and a member of the Committee on Planning and Design Policies. He is also Director of the Oregon Roadside Council.

Receives Bartlet Award

The George H. Bartlet award was presented to H. S. Fairbanks, deputy commissioner, U. S. Public Roads Administration. In presenting this award which is made each year to an individual who has made an outstanding contribution to highway progress, Public Roads Commissioner MacDonald said "Those who have been in close touch with the production of facts and thinking that have influenced national highway developments in the past several years have felt that the Bartlett Award must eventually go to him" . . . . every major report issued or participated in by Public Roads for many years back, bears the imprint of his genius for assembly and interpreting facts as a foundation for sound conclusions. His work has been a major influence on national highway development."

Traffic and Planning Committee

The committees, *Factual Surveys and Traffic,* operated as two distinct committees for the first time this year. These two groups replaced the former committees on *Traffic and Planning.* The committee on *Traffic* which will concern itself primarily with traffic engineering operational problems, is under the chairmanship of H. E. Neal, (Member). C. W. Prisk, (Member) is secretary. F. N. Baker and T. B. Dinnick, are chairman and secretary, respectively, of the committee on *Factual Surveys* which is concerned with the broader aspects of traffic planning.

Both of the newly formed committees concerned with traffic engineering functions held organization meetings and charted programs for the year.

Resolutions Passed

Resolutions passed at the closing session urged (1) that Congress authorize not less than the sum of Five Hundred Million Dollars ($500,000,000) for each of the fiscal years 1949, 1950 and 1951, for federal aid highway construction. (2) that the Civil Aeronautics Board establish as a fixed rule and regulation that in all instances airports or landing fields shall be so located and constructed that aircraft, whether taking off or landing, may do so while at all times maintaining a minimum clearance of at least sixty-five feet. (3) that all states adopt the A.A.S.H.O. recommendations concerning the maximum dimensions, weights and speeds of motor vehicles to be operated over the highways of the United States. (4) that uniformity among the States in control of dimensions, weights and speeds of motor vehicles is essential to the efficient operation and maximum use of our highway facilities. (5) that transportation equipment has progressed to the point that it will support loads far in excess of the designed strength of our highway facilities, thereby impairing the maintenance and usefulness of our highways. (6) that all states not now having a retirement plan for state employees give favorable consideration to such action. (7) that Congress appropriate the entire fund authorized for forest highways by the Federal Aid Act of 1944. (8) that extensive research projects be inaugurated by the correlation service of the Highway Research Board in the various states affected to reveal the weakening effects of freezing and thawing of road bases, subgrades, soils, and other supporting elements of the highways. (9) that the Secretary of War establish the Transportation Corps as a regular corps of the Army. (10) that each state which has not already done so undertake the study and development of a long-range highway plan such as recently completed in California.

The November
TRAFFIC ENGINEERING
will contain the
Annual Index

REPORT ON PARKING

The Yale Bureau of Highway Traffic has issued a report on "An Economic Study of Interior Block Parking Facilities." The report is taken from a thesis prepared by Mr. Charles S. LeCraw when he was a graduate student in Traffic Engineering at the Bureau in 1945-46.

In commenting on this work, Bureau Director T. M. Matson said, "This study deals with some of the economic aspects of providing off-street parking space in the interior of urban business blocks. In view of the dire need for off-street parking space, it is felt this study is timely. It is only applicable to localities in which there are urban business blocks whose land use lends itself to such development. Many cities throughout the country may find there are unused areas within downtown blocks which might be utilized for off-street parking. Among the cities which have used interior block areas for off-street parking are Hempstead and Garden City, New York."

This and other reports of this series are being published with funds provided by the Eno Foundation for Highway Traffic Control, Inc.

URBAN TRANSIT COURSE BEING HELD AT NYU

For the first time, a course in Urban Transit is being offered college students, officials of New York University have announced. The course is held at the Washington Square College, and is opened to students seeking degree credit, as well as those men now employed in the transit industry.

The course, which is designed to give students a general knowledge to the business and economic aspects of transit operation, has been hailed by Guy C. Hecker, executive manager of the American Transit Association, as "a significant development" toward arousing interest in city transportation.

The ATA executive explained that the transit course not only prepares students for future employment in the streetcar, trackless trolley and bus industries, but "stimulates thinking about transit and transit problems among other students and gives them a better understanding of transit matters."

The course started in September under the direction of the NYU Department of Public Utilities and Transportation.

TRAFFIC INSTITUTE STARTS NEW SCHOOL YEAR WITH 29

Twenty-five police officers selected in a continent-wide competition started back to school in September when the 1947 fall course in traffic police administration opened at the Northwestern University Traffic Institute.

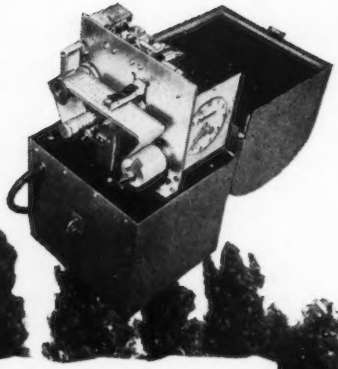
Four special students, including one U. S. Army officer, a police representative of the Chinese Ministry of Interior and two civilian traffic technicians from the Baltimore, Md., Police Department, will attend and bring the total enrollment to 29.

The 29 students were chosen from among scores of applicants from all sections of the continent. Police officers attending, in addition to the special students, represent 14 municipal police departments in the United States and one in Canada, three state police departments and one state highway patrol, one county patrol and the Canal Zone Police Department.

IACP PREXY NAMED

Chief of Police Charles W. Dullea, of San Francisco, was elected president of the International Association of Chiefs of Police at its 54th annual convention held in Duluth, September 21 through 25.

ARE YOU PLANNING AHEAD?



Many state, highway and county engineers are not only "planning ahead" for the construction of new highways and streets, but have already, through the aid of Streeter-Amet Traficounters, made extensive surveys . . . and are ready to put into operation a complete construction program, as soon as facilities and materials are available.

The Traficounter is a precision instrument . . . twice as fast as any other vehicle counter. Easy to install . . economical to operate . . . at work 24 hours a day, rain or shine. It gives facts that are indispensable to the traffic engineers who do the planning. Write for Bulletin on Streeter-Amet Traficounters.

STREETER - AMET COMPANY

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ON THE SHELF

More and more city governments are providing off-street parking facilities for low-cost or free parking and in an increasing number of cities, either through their governments or through private enterprise, definite plans are being made for new facilities. These and other trends in meeting the "number one municipal headache," are discussed in "Should Cities Go Into The Parking Business?" a reprint of an address given by D. Grant Mickle, Director, Traffic Engineering Division of the Foundation, at the 1947 meeting of the Michigan Safety Conference.

Following discussion of the various methods of providing facilities is a review of the need for a Parking Authority or Agency in cities as a means of determining needs, of obtaining uniform rates and service, of assisting private investors in various ways, and of assuring high standards of parking facility operation.

The booklet is being made available to officials and private citizens through national organizations concerned with the problem.

First of its kind, "Safety Supervision in Motor Vehicle Fleets," a book designed to promote and expedite the teaching of safe operation of motor vehicle fleets, has been published by the National Conservation Bureau, accident prevention division of the Association of Casualty and Surety Companies. This 230-page text was edited by Milton D. Kramer, assistant director of the Center for Safety Education at New York University, after ten specialists in various phases of fleet operation prepared its contents.

"Safety Supervision in Motor Vehicle Fleets" is a comprehensive, yet practical treatment of activities relating to driver selection, testing, training and supervision. Its publication is an outgrowth of nearly ten years' experience in training fleet safety supervisors at the Center for Safety Education and at other training centers.

Edward H. Scanlon (Commissioner of Shade Trees, Cleveland, Ohio) and Kirk M. Reid (General Electric Co.) have written a paper on the correlation of street lighting and tree management for the Illuminating Engineering Society. Their paper suggests steps whereby long-range plans for street lighting and for street tree management may be correlated. Illustrations are presented of tree varieties, heretofore little used, which have contours and dimensions superior for street tree planting under many conditions.

Pending fruition of long-range plans, existing plantings need skillful pruning to benefit the individual trees, to enhance the appearance of the street, and to avoid interference with street illumination by low-hanging foliage.

PARKING. Wilbur S. Smith and Charles C. LeCraw. The Eno Foundation for Highway Traffic Control, Inc. 1946. 119 pp.

Discussion of all phases of the parking problem and of the measures adopted in various cities in their efforts to solve it.

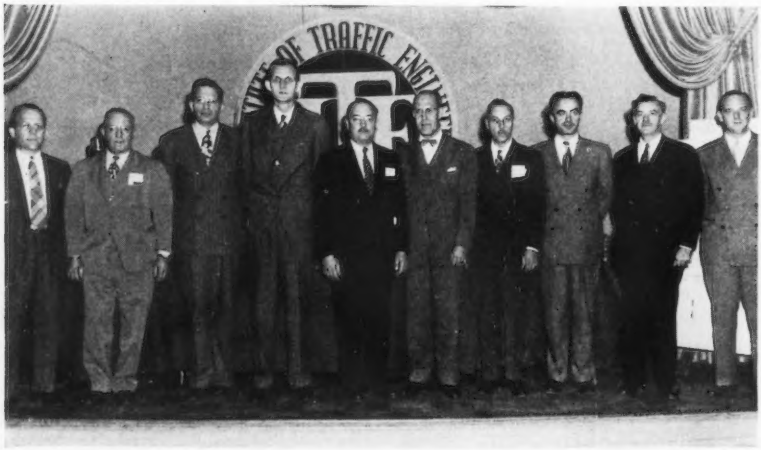
"*Westport, Connecticut, Traffic Survey Report and Recommendations*" by J. A. Carrothers and H. K. Evans, National Conservation Bureau, 60 John Street, New York 7, New York.

Based on studies conducted by the Traffic Engineering Division. Covers traffic administration and control for town of 10,000 population, Mimeo., 62 pages, 10 charts, 50 cents.

Activities . . . .

NEW ITE OFFICIALS SELECTED AT DETROIT

A Summary of the Eighteenth Annual Meeting



Pictured above are the new ITE officials selected at the 18th annual meeting held early this month in Detroit. From left to right are: Robert S. Holmes, Harry Neal, Henry Osborn, Wilbur Smith, Robert A. Mitchell, Thomas Seburn, William Brandes, Grant Mickle, Nathan Cherniack, and Fred Hurd. (Photograph by Henry Barnes).

Acclaiming the achievements of the past year, more than 325 persons, including members, wives, and guests attended the Eighteenth Annual Meeting of the *Institute of Traffic Engineers* in Detroit, October 1 through 4. The meeting was the largest gathering of traffic engineers ever held.

The Program Committee, under the direction of Arnold Vey, and the Michigan Section are responsible for providing an exceptionally interesting group of technical sessions and a well balanced program. Facilities for the individual meetings were excellent.

Business Session

Robert A. Mitchell, chief, bureau of traffic engineering, City of Philadelphia, was elected president. Harry E. Neal, traffic engineer for Ohio, and Wilbur S. Smith, associate director, Yale bureau for highway traffic, were elected vice presidents. Fred Hurd, also of the Yale bureau, was elected secretary and treasurer. The new members of the board of direction are: D. Grant Mickle, of the Automotive Safety Foundation, Washington, D. C.; William Brandes, traffic engineer for the City of Dallas; Nathan Cherniack, economist for the Port of New York Authority; and Ralph Dorsey, traffic engineer for the City of Los Angeles.

In reviewing the progress of the past year, Wilbur Smith declared that the most outstanding achievement was the employment of a full time executive secretary. Membership in the Institute increased approximately 15 percent during the year and now totals 373 members of all grades, he said.

Magazine Expands

Mr. Smith traced the expansion of TRAFFIC ENGINEERING magazine, and praised the general appearance and quality of the publication.

The Institute is financially solvent, according to Mr. Smith's report. The organization's operating funds have more than doubled during the past year.

Robert S. Holmes, executive secretary, told of the Institute's cooperation with other groups including the International Municipal Signal Association and the National Institute for Traffic Training. Four new local sections have been organized, according to Mr. Holmes. These include sections named, "Western States", "Midwest", "Florida" and "New England". The first student chapter has been formed at Yale University.

Second Day's Program

The second day's program was started with the traditional Biscuit Banter Breakfast which featured a skit by Detroit section "actors" on President-elect Bob Mitchell. The skit was remotely connected with an article about Mr. Mitchell which had appeared in *Coronet* magazine.

Public Roads Deputy Commissioner H. E. Hilts started the technical sessions with an explanation of the recent revisions in the Manual on Uniform Traffic Control Devices. Frank Eisenach, traffic control engineer for the Michigan Highway Department, followed with a discussion of route markings and directional signs. He emphasized that markings should be designed not only from the engineering aspects, but that motorists actions under varying conditions should be analyzed.

Demonstration Given

A model automobile was used to demonstrate operating characteristics of the modern vehicle as it relates to traffic engineering in connection with a paper given by Thomas J. Carmichael of the General Motors Proving Ground.

The day's final speaker was Martin E. Bruening, manager of the Milwaukee Area Study Traffic Survey Office. Mr. Bruening explained a recent type of traffic actuated controller termed "intersectional two traffic phase speed" with which signal indications of all traffic phases are red in the absence of actuation.

Third Day

Perhaps the most delightful day of the meeting was Friday, when 220 registrants were guests of the automo-

tive industry for a conducted tour of the Chrysler engineering laboratories, the Ford River Rouge plant and the General Motors Proving Grounds, with luncheon at the Dearborn Inn. The only unplanned "test" of the day occurred when the traffic engineers, being researchers at heart, induced their bus drivers to try to climb a 21 percent test grade at the G. M. Proving Ground with the loaded buses. Results: Some made it; some did not.

Most frequently heard comment on the tour concerned the superb arranging and scheduling of events and of the almost unbelievable accuracy with which the schedule was maintained.

Annual Banquet

The day ended with the Institute's annual banquet, preceded by a delightful reception and cocktail party tendered by the Automobile Club of Michigan, with its General Manager, Richard Harfst, as host.

Harvey Campbell, executive vice-president of the Detroit Board of Commerce, acted as toastmaster.

The speaker of the evening, B. E. Hutchinson, vice president of the Chrysler Corporation, congratulated the traffic engineers on attaining a high place among the technical societies of the nation. He emphasized the many mutual problems confronting the traffic and highway engineer and the automobile builder. "Neither of us could survive without the other," he said.

Mr. Hutchinson made a plea for less governmental restrictions on industry and for less burdensome taxes on highway users. He closed by advising traffic engineers not to confine their activities to the strictly technical phases of highway construction and operation but, now that the profession "has come of age," to broaden their interests to include the policy making aspects of highway transportation, particularly in the political and economic fields.

Second Technical Session

Ray John, executive secretary of the Associated Retailers of Indiana, led off the second technical meeting with an enlightening presentation on the business man's stake in the parking problem. Terming it "the great American fumble," Mr. John said he believed the problem involved only about 25 percent engineering and 75 percent human relations. He advocated that public agencies, federal, state and local be designated to give leadership among cities.

William B. Powell (Mem.) is seriously ill at his home in Buffalo. A resolution and wish for his speedy recovery was presented at the annual meeting. As the Institute's historian, as well as for his fine fellowship, Mr. Powell was missed at the meetings in Detroit.

The next was a subject for debate "Are public subsidies necessary to provide off-street parking facilities?" The affirmative speaker was Wallace Richards, Pittsburgh Regional Planning Association, and the negative side was taken by George Devlin, vice president of National Garages, Inc., of Detroit. The two speakers were not in com-

plete disagreement inasmuch as Mr. Richards described the Pittsburgh Parking Authority plan which involves public participation but not public subsidy. Mr. Devlin, in his remarks in opposition to public subsidy, was not opposed to public participation and guidance as long as parking operations were left to private capital.

Burrage Speaks

Robert H. Burrage, U. S. Public Roads Administration, described the latest revised techniques for making parking studies, emphasizing primarily the interview method. During the question-and-answer period which followed he brought out some of the practical applications of the data obtained.

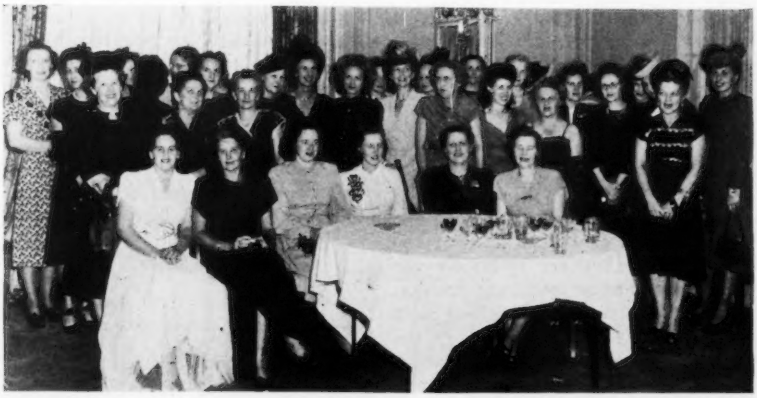
Light B. Yost, General Motors Corporation, reported on activities of the Committee on Research, of which he is chairman. Mr. Yost outlined a three-phase program involving (1) a compilation of needed traffic engineering researches, (2) a survey among various agencies to determine the extent of present research activity, and (3) a priority list of projects on which no research activity is presently progressing.

The session closed with an open discussion led by Theodore M. Matson on the subject, "The basis for a parking authority."

Saturday's Session

The Saturday morning closing session was exceptionally well attended considering that it followed the annual banquet and that it was the last day of the convention.

Because of weather interference with air travel, Judge C. W. Phillips was unable to bring to the meeting the highway administrator's viewpoint of traffic operations as was planned. However, Harry Neal, who pointed out that he did not represent Judge Phillips, spoke as chairman of the AASHO committee on traffic. Mr.



Pictured above are some of the 35 wives of traffic engineers attending the Detroit convention.

Neal's major emphasis was on the need for more traffic research. He said many of our uniform standards might be better accepted if they were based on facts resulting from more original research.

Airport Needs

Hervey Law, the second speaker, who is General Superintendent of Airports for the Port of New York Authority, advanced some worthy thoughts on traffic planning in airport design. Mr. Law traced the development of airports from the early "barnstorm" promotional days following World War I to the present, pointing out that in their locations seldom, if ever, was ground transportation between the airport and the city it was to serve considered. In this site planning, he said, is where traffic engineers can be of much help.

The air too is congested as you approach large centers of activity just as traffic congestion increases near urban centers. This calls for more airports with fast ground transfer facilities between them, he said.

Traffic engineering principles are utilized also in internal ground traffic operations in airports. Mr. Law closed with a plea to traffic engineers to aid in their local communities with the planning of airport location and design in accordance with sound highway transportation principles.

Police Viewpoint

Captain W. L. Groth, head of the Virginia State Police, spoke on the police viewpoint of traffic engineering. He explained that of the three basic elements in traffic control — the vehicle, the highway, and the human element — the traffic engineer was concerned mainly with the first two while the police were concerned with the last. "But we can't separate these basic ingredients," said Captain Groth.

Captain Groth emphasized the need for traffic engineers to do a better job of selling their services. The engineers need the police and the police need the engineers, he said. He asked that traffic engineering take enforcement "into its circle" and pointed out that the teaching of traffic engineering principles was now a part of most police training courses.

He illustrated his ideas by pointing out the cooperative plan between the Virginia State Police and the State Highway Department now functioning very effectively with numerous benefits to both groups.

Progress Recorded

D. Grant Mickle reported on the activities of the Institute's Committee on Traffic Planning. He declared that the committee had made much progress, having produced a sizable report on Traffic Engineering Functions and Administration in cooperation with the American Public Works Association and the American Association of State Highway Officials. Mr. Mickle showed a completed mimeograph copy and said that the report would be printed and published by the Public Administration Service.

The last item on the program was a panel discussion on practical ways of bringing traffic engineering service to cities under 75,000 population, led by Harold F. Hammond and assisted by J. E. P. Darrell, Harold Eckhardt, George Papageorge and Henry Evans (who served in the absence of C. Richard Gallagher.)

Small City Needs

Mr. Hammond reviewed the serious need for, but lack of, traffic engineering service in most of the smaller communities, and then called upon panel participants for their views. From the

discussion came the statements that small communities could obtain traffic engineering service through many state and county agencies and service organizations, but that in many cases these groups were already overburdened with their own work considering usual staff limitations. It was agreed that for the most part the small city must rely on consultants or part time services of a traffic engineer who might be employed jointly by two or more communities.

The idea of appointing an Institute Committee to promote the services of consultants among small municipalities was discussed, but no action was taken.

The Annual Meeting closed with an informal statement by President Mitchell in which, after summarizing some of the convention highlights and wishing all Godspeed on their journeys home, he said in effect "See you next year in Philadelphia" where the 19th Annual Meeting will be held.

SEX APPEAL IN SIGNS

Sex appeal in highway signs is the latest proposal before the Washington State Highway Department.

Sample signs bearing curvesome designs of nude women are being studied by the accident prevention division, but the idea doesn't stand much chance.

Maurice L. Van Mechelem, assistant safety officer, feels that college boys probably would steal the signs for their rooms.

"Then, too, the distraction for the male driver might cause more accidents than paying no attention," he reasoned.

One railroad crossing sign had the traditional "X" portrayed by a pretty brunette, feet apart and arms held high and widespread.

Another reflecting sign had "Slo" and "Curve" beside a side view of another long-limbed beauty.—*(United Press)*

SPEAKS AT PENN STATE

Safe and efficient regulation of the immense flow of motor vehicle traffic grows daily more important in view of steadily increasing numbers of vehicles on the road, Pennsylvania police officers were told recently by Henry K. Evans, director of traffic engineering for the National Conservation Bureau. Speaking on "Traffic Flow Regulation" before two sessions of the annual Police Training School at Pennsylvania State College, Mr. Evans pointed out that the year 1946 saw an all-time high in motor vehicle travel in this country, 3.6 per cent greater than the previous top figure in 1941.

Connecticut, the grand award state in the 1946 National Traffic Safety Contest, had a traffic death rate of only half the national rate. If the rates of all states had been as low, more than 16,000 lives could have been saved.

The pedestrian may be wrong, but he doesn't deserve a death sentence.

The shape of standard highway signs have a definite meaning, the National Safety Council says. For example, the stop sign always is octagonal, and should be heeded even if the lettering is obscured.

You Can Now Measure

NIGHT - VISIBILITY

IN THE FIELD

The new Hunter Night-Visibility Meter will measure the night reflectance of both traffic-paint and sign surfaces. You read directly from its scale how the paint or sign compares in night brightness with perfect white.

Good reflectorized surfaces are many times brighter; old and dirty surfaces may be less bright.

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SECTION NEWS

WASHINGTON SECTION

The first fall business meeting of the Washington Section was held on the evening of September 17 at the Club Studio of the Fairfax Hotel, with 15 members and guests in attendance. New committees were named, delegates to the D. C. Council of Engineering and Architectural Societies were appointed, the possible admission of affiliates was discussed, and the program committee reported on its plans for the coming year.

For the benefit of Institute members who have occasion to be in Washington during the year, and who are always cordially welcome to attend our meetings, the program committee set up the following schedule:

October 29 Debate on "Are public subsidies necessary to provide off-street parking?"
December 3 Out of town speaker on "Traffic Engineering in Airport design and operation."
January 14 Speaker on "Highway capacity."
February 18 Social night.
March 24 Special speaker on "Uniformity of traffic laws and ordinances."
May 5 Special speaker from State Department on "Transporting V. I. P." (Very important persons)
June 9 Annual business meeting.

The evening closed with the showing of a color film describing the attractions of Washington, entitled "Invitation to a Nation," by courtesy of The Capital Transit Company.

NEW YORK SECTION

The first fall dinner meeting of the New York Metropolitan Section of the Institute of Traffic Engineers, was held September 25. There were 37 members and guests present.

Bob Holmes, executive secretary, ITE, reported on the agenda and program prepared for the Annual ITE meeting in Detroit, extending a cordial invitation to all members to be present. Mr. Holmes also reviewed briefly the work he has been doing in his new position as Executive Secretary, particularly noting the increased interest as indicated by the unusual increase in the number of applications for membership.

The November
TRAFFIC ENGINEERING
will contain the
complete text on the
International Sign System

President Evans proposed the suggestion that this Section extend an invitation at the Annual ITE meeting in Detroit for the next convention or annual meeting to be held in New York. Bob Mitchell of Philadelphia offered the observation that the Section would be responsible for considerable expenditure of money, $700 to $800, to put on such a meeting and he doesn't believe any section alone could swing such a deal and it would be better to canvass the opportunities in the Section to obtain outside financial support before issuing an invitation for such a meeting. This was confirmed by Bob Holmes and others. It was finally suggested that the President appoint a committee to consider the possibility of such an invitation and perhaps consider the following year 1949 rather than the next meeting, 1948. In this connection Bob Mitchell stated that it was his understanding that the Washington Section offered a bid for the 1948 meeting and had a good chance of getting it.

The meeting was then turned over to the speaker of the meeting, Mr. J. F. Fairman, Vice President, Consolidated Edison Company, New York, who was to speak on "Professional Engineers and Collective Bargaining and Engineers in their Organizations."

Members attending were: Richard Siver, Robert A. Mitchell, Robert S. Holmes, Charles LeCraw, Jr., Leslie Williams, Fred Fisch, Edward Clark, Nathan Cherniack, Lou Bender, Wilbur Smith, Henry K. Evans, John Gibala, Ed Wetzel. Guests were: L. Lawton, Charles Lenz, J. F. Leahy, A. Keeley, J. Burch, D. Morris, E. C. Cross, Arnold Fisch, Albert Pagano, William Lenz, Jerome Franklin, Martin Klein, Ed Capillo, Harry Harrison, Harry Neal, Ed Shrope, M. A. Beebe, James Burch, Don Loutzenhiser, Ed Cyr, Bill Chapin, Carl Fritts.

Picture of members of Michigan Section at its annual summer outing.

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I T E PERSONALS

LAWRENCE S. WATERBURY (Mem.) is now a partner in the firm of Parsons, Brinckerhoff, Hogan and MacDonald, consulting engineers with offices at 142 Maiden Lane, New York City. Mr. Waterbury, who has been in charge of all traffic projects for the firm since 1937, was admitted to partnership on July 1st.

During the period of his responsibility for traffic projects, Mr. Waterbury has completed a number of traffic surveys, earnings analysis of toll facilities, and arterial highway planning studies in many parts of the United States. He will continue to supervise the traffic work for the firm in addition to the broader duties of his new position.

In the August 1947 issue of TRAFFIC ENGINEERING, there was an ITE personal about **J. E. JOHNSTON** to the effect that he had been appointed as Executive Secretary to the Nebraska Safety Council and was formerly Traffic Engineer for the State of Nebraska. This item was slightly in error. Mr. Johnston is still the Traffic Engineer for the State and carries on his activities as Executive Director for the Council in addition to other duties. The Council employs an Executive Secretary to carry on the full-time activities.

BOB MITCHELL (Mem) and **LES WILLIAMS** (Mem) were speakers at the annual convention of the American Transit Association in Atlantic City in October.

YEARBOOK CHANGES

Bebee, Maynard A., R. F. D. 4, c/o Mrs. F. Springwater, Troy, New York.

Eugene Maier, Division of Surveys & Plans, City of Houston, Houston, Texas.

C. Richard Gallagher, Consulting Engineer, 620 East Main Street, Ventura, California.

Eliot V. Parker, War Dept. Safety Director, War Dept. General Staff, Room 2E949, The Pentagon, Washington 25, D. C.

J. Paul Buckley, Engineer-Director, Michigan Good Roads Federation, 307 North Walnut Street, Lansing, Michigan.

Mr. Walter D. Gottschalk, Dept. of Traffic and Transportation, 300 City Hall, Miami, Florida.

Mr. Kermit B. Bykken, 833 Marshall Avenue, St. Paul 4, Minnesota.

Mr. Ray C. McCally, 917 West Culver, Phoenix, Arizona.

Mr. Charles M. Upham, Jr., 85 W. Center St., Manchester, Conn.

Mr. Laurence A. Kane, Traffic Control Corp., 33 N. LaSalle St., Room 1731, Chicago 2, Illinois.

From the State of Florida comes the following:

"Whereas Earl John Reeder has shown competency and fitness to practice Traffic Engineering and has complied with all requirements of the Florida State Board of Engineer Examiners; therefore by virtue of the powers vested in said Board by the State of Florida, the Florida State Board of Engineer Examiners hereby issues to him this certificate of registration No. 3140 to practice Professional Engineering in the State of Florida as provided by the laws of the State of Florida and subject to the powers of revocation as vested in said Board."

SELECT HANDBOOK EDITORS

The committee for the revision of the *Traffic Engineering Handbook* has announced the selection of the editors of individual chapters. Editors selected are: Light B. Yost, Chap. 1, *The Vehicle;* Henry Evans, Chap. 2, *Vehicle Motion;* T. W. Forbes, Chap. 3, *The Driver;* Earl Reeder, Chap. 4, *The Pedestrian;* David Baldwin, Chap. 5, *Traffic Accidents;* F. B. Crandall, Chap. 6, *Traffic Studies;* W. H. Voltz, Chap. 7, *Traffic Markings;* Wm. Eliot, Chap. 8, *Traffic Signs;* Martin Bruening, Chap. 9, *Traffic Signals;* Grant Mickle, Chap. 10, *Parking & Loading;* Fred Fowler, Chap. 11, *One Way & Thru Streets;* Charles Prisk, Chap. 12, *Roadway Planning & Design;* Arnold Vey, Chap. 14, *Traffic Islands;* John Ecker, Chap. 15, *Pedestrian Islands;* H. W. Osborne, Chap. 16, *Street and Highway Lighting.*

No selection has been made for Chap. 13, *Speed Regulation and Zoning.*

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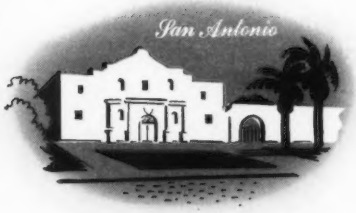

SECRETARY'S COLUMN

By the time this column is in print the 18th Annual Meeting of the INSTITUTE will be a matter of history. Those of you who were fortunnate enough to be in attendance will agree with me that this was one of the most outstanding meetings in the annals of the INSTITUTE, particularly from the standpoint of progress made during the past year and plans for the future. If we can maintain the pace and receive the same wholehearted cooperation from members this coming year, we should be able to report even greater progress at our next Annual Meeting. Our hats are off to the Automotive Manufacturing Association and the Detroit Section of the ITE for playing host in such an excellent and entertaining manner.

Among the outstanding developments noted at the Business Meeting was the formation of four new Local Sections during the past year. This is one of the best means of increasing interest in the INSTITUTE and expanding our membership. If the volume of applications continues its present pace, this next year will show the largest increase in membership of any previous year. This, of course, will not be possible without the support of Local Sections and other members who are not geographically located to participate in Local Section affairs. In the short period of time that I have been working with the National headquarters, I have ascertained the startling fact that there are roughly 300 engineers who are conducting traffic engineering work in states, counties, and municipalities, who could qualify for membership in the INSTITUTE if their interest in the organization could be aroused through contact with our membership. As a professional organization we, of course, do not condone "ballyhoo" membership drives. However, this does not preclude individual members and Local Sections from inviting other engineers to join them in local activities for the purpose of an inter-change of ideas.

In line with correspondence received since publishing earlier columns, I would like to amplify a statement made in my column for the August issue. At that time, I stated that "Several large cities throughout the country . . . . are making inquiries for necessary legislation." I did not imply that *state* legislation was necessary. My inference was toward a change in local city ordinances to provide for establishment of a new City Traffic Engineering Department. . . . Also, in the August issue I indicated that Mr. Herbert J. Klar, a recent graduate of the Yale Bureau of Highway Traffic, had returned to his position with the L. I. Parkway Commission. This statement was an error. Mr. Klar and Mr. Ted Siegel, another graduate, have joined Jerome D. Franklin as assistants to Arnold H. Vey in New Jersey. . . . The Yale Bureau has just begun work with another large class and it now appears that the War Department plans to send another group of officers and key civilian personnel for a short course next Spring. Apparently, the War Department has no intention of being caught short of trained traffic engineers in any future emergency.

ROBERT S. HOLMES

POSITIONS AVAILABLE

The California State Personnel Board has announced an examination for Assistant Transportation Engineer. **Salary Range:** $325-$395.

Requirements are—**Education:** Graduation from college with major work in engineering. (Engineering experience may be substituted for college training on a year-for-year basis.) and **Experience:** Two years of engineering (or operating) experience with a transportation agency or a transportation regulatory agency. **Citizenship and Residence:** All applicants must be United States citizens and be residents of California for at least one year immediately prior to the dates of the examination.

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At long last . . . . a signal that really curbs the **reckless pedestrian!**

He is one of the major causes of death and injury . . . . the reckless pedestrian who ignores the conventional traffic signal which he considers for vehicles only. His attention is arrested by the distinctive shape and brilliant lettering in Crouse-Hinds NEON Pedestrian Signals, the signals that deliver their message directly to HIM. He just naturally obeys their positive command.

Needed at all extra-busy corners, these signals are invaluable at complicated intersections, especially where it is hazardous for pedestrian and vehicular traffic to move at the same time in the same direction. Install them in the direct line of pedestrian vision at one of your "problem" intersections and note the outstanding improvement in pedestrian control.

These NEON signals are ideal for use as vehicle information signs, such as ROUTE 20⟶ , ONE WAY⟶ and NO LEFT TURN. Their striking appearance catches the eye of the motorist in locations where ordinary signs would be "lost" in distracting surroundings.

The weatherproof Crouse-Hinds NEON Pedestrian Signals and Traffic Signs are cast aluminum, built to withstand heavy duty. The letters are all red or a red and green combination, 4-1/2" high. Available in one-line and two-line types, these signals can be mounted like a conventional traffic signal, on top of a post, on bracket arms, on a span wire, or on a mast arm.

Write for full details. Ask for descriptive circular, Type TNO. It contains catalog listings of the 14 variations that are regularly furnished.

A Nationwide Distribution Through Electrical Wholesalers

Crouse-Hinds Catalog 226 lists a complete line of traffic signals, beacons, flashers, and a series of controllers designed to help you solve your traffic control problems ... from simple installations up to the most complex heavy traffic problem. Send for your copy.

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TRAFFIC SIGNALS
AIRPORT LIGHTING

Personalities . . . .

This is the fifth in a series of articles about Institute Members.

From consulting work in city planning to traffic engineering—that's the course followed by Burt Marsh, a Civil Engineering graduate of Worcester Polytechnic Institute. After getting his B.S. degree in Civil Engineering, Burt took a year at the Yale University Graduate School.

He then went with a consulting firm in city planning. Burt became impressed with the extent to which urban traffic problems were looming in the city picture, and in his city planning work. Becoming more and more interested, he accepted in 1924 the invitation to become the first City Traffic Engineer in Pittsburgh. In 1930 he moved to Philadelphia in the same capacity. Burt has always believed that there should be a close tie-in between traffic engineering and city planning. He assumed his present position in 1933.

One of the founders and second president of the Institute, Burt has always been an advocate of a vigorous professional society and of the maintenance of very high standards.

Recognizing the lack of materials on techniques and procedures and of the almost utter lack of public appreciation of the growing need for engineering treatment of traffic operations, he devoted much effort and energy to the preparation of technical materials as, for example, on safe ap-

(See MARSH *on page 47)*

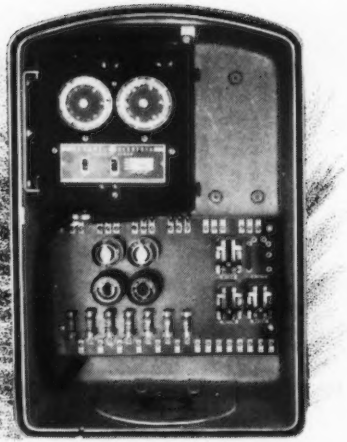
A native of the tall-corn state, Grant Mickle has long been one of the Institute's most active members and a staunch supporter. He is a past president, member of the Board of Direction, and is active on a number of its committees.

Grant is a civil engineering graduate of the University of Michigan and has an M.S. degree from Harvard. He began his professional career in the transportation field in 1931, upon completion of his college work, in general office and field duties in the Traffic Division, Massachusetts Department of Public Works. During 1933 and 1934, he directed the public works section of the Massachusetts Highway Accident Survey.

In 1934, Mr. Mickle supervised the Arkansas Traffic Survey for the (then) U. S. Bureau of Public Roads, and the following year he went with Jensen, Bowen and Farrell, a consulting engineering firm of Ann Arbor, Michigan. With the latter organization, he organized its Traffic and Transport Department and for four years, as manager of the department, directed a number of comprehensive traffic surveys including those of Louisville, Toledo and other cities. In addition, during these same years he served as a consultant on traffic and transportation problems in New York

(See MICKLE *on page 47)*

A New Traffic Controller



Two Cycle Lengths The new G-E Type DK controller has two independently driven dials. By having dials rotate at different speeds and by switching control from one dial to the other, cycle length can be changed. Lengths from 20 to 120 seconds can be selected for either dial.

Two Percentage Splits Percentage split for each dial is selected independently —in increments of 1 per cent. Thus main-street green can be lengthened for rush hours—and yellows can remain approximately the same regardless of total cycle length.

Cycle and Split change without a master Selection of cycle length and percentage split can be made without interconnection—either manually, or automatically by use of a time switch.

Progression without interconnection Since both dials revolve at all times, it is perfectly practical to operate a number of these controllers from a common a-c supply, and synchronize both dials so that progression with either is achieved without interconnection. Manual synchronization switches are provided.

Triple offset For an interconnected system, this controller may be provided with automatic reset equipment, thus obtaining single offset with one dial and a choice of two offsets with the other. Thus, the system can provide ideal progression for northbound traffic during one period, for southbound during another, and with the optimum all-round progression during normal traffic periods.

Compact — Sturdy — Simple This DK controller is soundly designed. The improvements recently incorporated in the DH line are provided. All bearings are life-time lubricated. Every part has been designed with close attention to all details—to keep maintenance low, reliability high.

* * *

G-E engineers will be glad to work with you in determining where this new controller will fit into your system. Address our nearest office or *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

453-39D

(MICKLE, con't. from p. 45)
City, Detroit, and Oakland, and as Assistant Director of the Michigan Highway Planning Survey. In the latter capacity he organized and directed state-wide traffic studies and the Detroit Traffic Survey which served as a basis for many of Detroit's traffic improvements during later years.

In 1939, Grant became a member of the staff of the Michigan State Highway Department as Traffic and Safety Engineer, and the following year he accepted a position as traffic engineer for the City of Detroit. The success of the Detroit Traffic Engineering Bureau is well known.

Grant moved to Washington, D. C., to assume his present position as traffic engineer for the Automotive Safety Foundation, in 1943, where he has become a nationally recognized leader in the traffic and transportation field.

He is married, has two children, and lives in suburban Chevy Chase, Maryland. During the spare time he can find between his many travels and activities, Grant derives a lot of pleasure from such home improvements as paneling his recreation room and building an outdoor fireplace. He does some photography, and spends as much time as possible during the summer with his family at their cottage on Lake Michigan.

(MARSH, con't. from p. 45)
proach speeds at intersections, use of accident records, on traffic signals and timing, etc.

Under his jurisdiction two of the most extensive flexible progressive traffic signal systems were installed in Pittsburgh and Philadelphia.

As Director of the AAA Traffic Engineering and Safety Department, his activities are divided into three major parts: traffic and safety education, parking, and highway improvements.

Always a strong believer in the importance of traffic safety education, he has enthusiastically developed programs primarily directed to elementary children and high school youths. The most notable development has been the program for driver education and training courses in high schools for which a new textbook has just been produced under his direction.

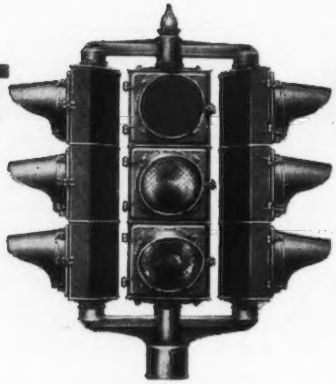
The importance of joint activities for production of any standard codes, guides and manuals has always impressed Burt, and he has taken an active part in the production of many of these including the Manual on Uniform Traffic Control Devices, the Uniform Vehicle Code, Model Traffic Ordinance and the forthcoming guidebook on Traffic Engineering Functions and Administration. These laborious, time-consuming chores have long-time benefits and for Burt they have made the effort seem worthwhile.

Another area of major interest has been professional training and Mr. Marsh has participated in a great many programs of this type for traffic engineers, traffic police and other traffic specialist groups.

In its highway work the Association is "all out" for the National System of Interstate Highways, just designated, and seeks constantly to secure the adoption of sound highway policies and resultant improvements, with great emphasis on main highways.

Burt Marsh is a member of the American Society of Civil Engineers, American Public Works Association, International Association of Chiefs of Police, Society of the Sigma Xi and Tau Beta Pi.

A few personal points—born in Worcester, Massachusetts, Burton Marsh is married and has three children. His hobbies and interests include swimming, care and conservation of trees, and photography. One might say that his enthusiasm for his work decreases his need for hobbies.

S T  P

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An ever increasing number of installations of Marbelite Traffic Signals are being made—all the way across the country from New York to California.

The reason is due to Marbelite reliability, performance and outstanding workmanship. Those who use Marbelite know these systems require a minimum of service and maintenance attention.

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